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XXI.—*The Ornithology of India.—A Commentary on Dr. Jerdon's 'Birds of India.'* By EDWARD BLYTH, late Curator of the Museum of the Asiatic Society at Calcutta, Hon. Mem. As. Soc.

UPON looking over Dr. Jerdon's three volumes, with the view to comment upon them, I was surprised at first to remark how little seemed to be needed in the way of emendation, considering the number of species and also the extent of territory comprised within the geographic limits to which the author has restricted himself; but on proceeding with my task, I was led from inquiry to inquiry, and from one result to another, in the investigation of synonyms and examination of type specimens in various collections, until this series of notes has gradually attained a length far beyond what I had originally anticipated.

In India I had the privilege of inspecting most of the proof-sheets of the first volume, and any suggestions that I had at the time to offer were of course at the author's service; whilst various identifications at which I arrived on my return to England in March 1863 are inserted in the Appendix at the end of his third volume. In 'The Ibis' for 1865 (p. 27 *et seq.*) I further endeavoured to elucidate the synonymy of various species, and it is not probable that much now remains to be accomplished in that particular department, additional to what I have now to bring to notice; but it is likely that a few more species will have

to be added from the desert territory of the north-west, as also from the extreme south of the peninsula, where it may be expected that some of those will be found to inhabit which at present are known only from Ceylon. Indeed the latter are so few in number, and those few *congeneric* in every instance (or at least approximately so in the only two slightly exceptional cases*) with birds of continental India, that their exclusion from Dr. Jerdon's work must be regretted. In a note to his Introduction (p. xxxix) he indeed remarks, "I would greatly like to have included all British India, from Assam to Tenasserim and Ceylon, in the scope of the present work; but I was afraid that this addition would have swelled my work to an unwieldy bulk." To me it appears that the great Indo-Chinese subregion, from the valley of the Bráhmáputra southward, might very well be separately treated of; whereas Ceylon is undoubtedly subordinate to the special Indian subregion, notwithstanding that a contrary opinion has been expressed†. Some thirty to forty species of birds only (as specific distinctions are variously admitted, and some of these distinctions are very slight) are known to me at present as being peculiar to the island, several being merely specialized insular representatives of kindred races—or very near congeners—on the mainland, though the limits of this specialization can only be arbitrarily traced; while others are most strongly characterized species, the recognition of which must be universally accepted. As examples of the former may be mentioned *Loriculus coulaci* as distinguished from *L. vernalis*, *Pomatorhinus melanurus* from *P. horsfieldi*, *Palumbus torringtoni* from *P. elphinstonii*; and as examples of the latter may be adduced the Jungle-fowl and Spur-fowl of Ceylon (*Gallus stanleyi* and *Galloperdix zeylanensis*),

* *Phœnicophæus*, as distinct from *Xanclostomus* (v. *Melias*) and *Meropixus*, Bonap. (Comptes Rendus, 1854, xxxviii. p. 58), founded upon a species peculiar to Ceylon, but which is barely separable from *Rubigula*, nobis.

† *Vide* Tennent's 'Ceylon' (Introduction, p. xxxii, &c.). The principal argument relates to the Cinghalese Elephant, which was supposed to be identical with that of Sumatra, but not with that of India. I am now completely convinced of the specific identity of all living Asiatic Elephants (as far as hitherto discovered at least, and it is most improbable that another should yet remain to be distinguished); and such was the matured opinion of the late Dr. Falconer, unquestionably the highest authority for the species of Proboscideans, living or extinct.

a fine Parrakeet (*Palæornis calthrapæ*), with *Athene castanotus*, *Toccus zingalensis* (*verus*), *Phœnicophaus pyrrhocephalus*, *Centropus chlororhynchus*, *Megalæma flavifrons*, *Cissa ornata*, *Eulabes ptilogenys*, *Temenuchus albofrontatus*, *Garrulax cinereifrons*, *Meropicus atricapillus*, and others, nearly all of which are peculiar to the mountainous part of the island, where also are many species which occur only on the highest grounds in Ceylon and those also of South India. Again, certain stragglers have been noticed on the island which have not yet been ascertained to occur in the peninsula of India, as *Spizaetus nipalensis*, *Goisachius melanolophus*, and *Tringa albescentis**; and it is likely, as before remarked, that more species will yet prove to inhabit alike the island and the southernmost part of the peninsula, for it is certain that neither the one nor the other has as yet been adequately explored. The Cinghalese *avifauna* is more particularly treated of in the sequel.

From the base of the Himálaya to the sea there is a much greater amount of uniformity in the fauna of India than exists throughout that region as compared with the southern or Indian flank of the grand Himalayan chain. The sub-Himálayas, as Mr. Hodgson denominates the mountains which do not attain to the altitude of perpetual snow, have a vast number of genera, and even species, in common with the Indo-Chinese subregion, increasing in number eastward, which are unknown in India south of the Himálaya; while in a northerly direction there is a considerable influx of generic types, and even species, common to West Asia and Europe, and African types come up through South Arabia and Beluchistân to Sindh and Rájputána—the Indian desert territory. To extend the bounds of "India" beyond the Himalayan snows, or the passes of the Sulimáni chain, into Afghánistân, amounts to the confusion of all ideas of an *Indian* entity; but the north-east boundary is less marked, and so few *known* species would need to have been added from the valley of the Bráhmáputra and neighbouring hills, additional to those admitted from Sikhim and from Eastern Bengal, that, together with the Ceylon species, they would not have materially increased

* *Vide* Swinhoe, in 'Ibis,' 1864, p. 420. *Goisachius melanolophus* has also been received from Ramri Island (Arakan).

the bulk of Dr. Jerdon's volumes. To a very great extent, and indeed essentially, the sub-Himalayan fauna, up to the zone of *Coniferae*, is an extension westward of that of the Indo-Chinese subregion, as contrasted with the fauna of India proper; and the same more eastern fauna, in its low-country forms, extends also to the Bengal Sundarbáns and along the *tarai* or marshy tract at the foot of the northern hills. A very marked change becomes apparent on quitting the alluvium of the lower Ganges in a westerly direction, where sundry species common to the Indian peninsula with Ceylon at once present themselves abundantly which never stray into Lower Bengal, while not a few of the more characteristic species of Lower Bengal and of the Indo-Chinese countries disappear as suddenly and entirely.

In the higher ranges of the sub-Himálayas the Indo-Chinese and more tropical forms give way, for the most part, to those characteristic of the temperate parts of Europe and Asia; and the *Fringillidæ*, in particular, become very numerous in species, which, southward of the Himálaya, are replaced by *Plocei* and *Estreldinæ*, one species only (*Carpodacus erythrinus*, besides *Emberizinae*) extending far into the plains as an ordinary winter visitant. The connexion of the *avifauna* of the Himálaya with that of the plains is indeed chiefly maintained by species which resort to the hills to breed and return to pass the winter southward, insessorial birds being chiefly here referred to.

The proper Indian fauna, as distinct from the sub-Himalayan, culminates in the hills of Southern India and especially of Ceylon; but a few peculiar species are elsewhere scattered within the area of that particular fauna, as notably the remarkable Tree-creeper, *Salpornis spilonotus* (akin to the Australian form *Climacteris*), in the jungles of Behar, and the Courser-like wader, *Rhinoptilus bitorquatus* (with a sole African congener), in Northern Coromandel. The great plains of Upper India are reproduced in the tableland of the Dukhun, where again are characteristic species (common to both) which have not been observed elsewhere; such are *Hirundo concolor*, *Pericrocotus erythropygius*, and *Malacocercus malcolmi*. But though subordinate provinces are more or less traceable, as indicated by Dr. Jerdon in his Introduction (xxxix *et seq.*), the most prominent distinction is

undoubtedly that of forest-clad hill and broken country, on the one hand, and the great plains which are almost bare of natural jungle and extensively under cultivation, on the other. It would occupy more space than could be conveniently spared to venture upon details of physical geography, which cannot be briefly disposed of with advantage to the reader; so, having called attention to Dr. Jerdon's remarks in his Introduction, which apply more particularly to India southward of the Himálaya, I do so likewise to a valuable paper by Mr. Hodgson, '*On the Geographical Distribution of the Mammalia and Birds of the Himalaya,*' which is published in the '*Proceedings of the Zoological Society*' for 1855.

In the matter of classification Dr. Jerdon holds to the antiquated notion of associating the Parrots with the other zygodactyle birds, the Swifts with the Swallows, the *Eurylaimi* with the Rollers, the *Trochilidæ* with the tenuirostral *Passeres* (as likewise *Upupa* and *Promerops*), and—a degree less in violation of true affinity—the *Henicuri* with the *Motacillæ*; while he approximates *Menura* to the *Megapodiidæ* (ii. p. 470) ! thus failing, in my opinion, to appreciate the import of the anatomical and more important distinctions. However, as regards the Swifts and Swallows, he quotes (i. p. 155) Van der Hoeven, who remarks, "I trust it is not to be ascribed solely to custom and to prejudice in favor of a division generally adopted, if I cannot divest myself of this opinion, *viz.*, that Swallows and Swifts should be classed together;" also Kaup, who declares that, "To separate the *Cypselidæ* from the *Hirundinidæ* cannot enter the mind of any one whom scholarship has not deprived of all sense of natural order;" again, "From all these arrangements it would appear that men, otherwise most capable, if pre-occupied in favour of some particular characteristic type, will, in accordance with these and in defiance of nature itself, tear asunder the most natural connections, merely to unite forms like the *Cypselidæ* and *Trochilidæ*, which in all other respects are dissimilar." In what respect, it may be asked, beyond adaptive modifications of the same special type for different purposes? even as the Swallows and the Treecreepers, the Honeysuckers and the Finches, are analogously different modifications of the same

special *passerine* type of organization. Prof. Kaup's views I would, on the contrary, stigmatize as unmitigated heresy, to be repudiated by every devout ornithologist. What is there but superficial resemblance as opposed to intrinsic conformity?—the identical principle which would include the Hyæna under *Canidæ* instead of *Viverridæ*, and would make a Squirrel of the Chinchilla, a Rodent of the *Chiromys* or of the Marsupial Wombat, or an ordinary Edentate of the Monotreme *Echidna*, which not only would consider *Anguis* to be an Ophidian, but would put the Salamanders in among the Lizards, the Cetaceans among Fishes, the Orthopterous *Lepisma* among Crustacea, the Crustaceous Barnacle among Shelled Mollusks, and the *Ascaridæ* among the Red-blooded Annelides; which would make a Leech of a *Planaria*, and in botany would refer the tree ferns, the *Cycadaceæ*, and the pandanaceous *Nipa* to the order of palms! Prof. Kaup's opponents in this matter may perhaps be excused if they likewise venture to indulge in a little mild *fanfaronnade*. They cannot help recalling to mind that redoubtable popular group of “shell-fish,” which comprehends Oysters and Snails (Whelks and Periwinkles) and Lobsters, with Turtles and (may be) Armadillos, and the *Echinidæ* of course,—this notable aggregation comprising alike forms of the *Vertebrata*, *Annulosa*, *Mollusca*, and *Radiata*. Scientific zoology discriminates between real and merely seeming and superficial distinguishing characters, fundamental affinity from its deceptive guise, mere adaptive modifications from the more comprehensive special bases of the organization, and the “mocking” of one group by members of another (which Bates and Wallace have shown to exist among the Butterflies), so many instances of which at once arise to the recollection. It is the business of the naturalist to disentangle all such intricacies, to go deeper than the surface, and try to find out what objects really are, and not what they only seem to be. Imbued with this idea, it appears to me that the association of the Swifts and Swallows in one family, or even immediately higher group, is about tantamount to subordinating the Shrews among the *Muridæ*—or the Tupayes among the *Sciuridæ*—in the class of Mammalia. The *Hirundinidæ* illustrate and exemplify, even to the minutest detail, the special *passerine* type of conformation,

which is merely modified externally to confer extraordinary vigour of wing. The *Cypselidæ* have not even one characteristic of that very variously modified special ornithic type, and internally as well as externally—in the bony framework equally with the exterior adaptations—are modified to attain the maximum power of flight; and the same remark applies to the *Trochilidæ*. There is a fundamental conformity in the organization of the *Cypselidæ* and *Trochilidæ*, analogous to what exists in the genus *Indicator* and the great family *Picidæ*, and which alike removes *Indicator* from *Cuculidæ* and *Cypselidæ* from *Hirundinidæ*; and in the same way *Leptosomus*, which has been commonly assigned to *Cuculidæ*, is far more nearly akin to *Coracias* and *Merops*, if not also (as I long ago suggested) to the South American family *Bucconidæ*, which latter group I formerly styled *Tamatiadæ**, and separated altogether from the special group which comprehends the *Rhamphastidæ* and kindred *Megalæmidæ* and *Capitonidæ* (if these latter can be properly recognized apart). There is no occasion to pursue this subject further here, as in the sequel I have found occasion to comment on the affinities of particular groups. Let me now, therefore, proceed to the special object of this contribution, which will occupy a good many pages of the '*The Ibis.*'

In his first page the author states that the rapacious birds have "all their toes upon one plane,"—the kindred genera *Sarcorhamphus* and *Gyparchus*, and *Cathartes* also to some extent, being the only exceptions that I know of, alike appertaining to the minor continent.

* *Mag. Nat. Hist.* n. s., 1838, p. 317. *Vide* also p. 256 *et seq.* of the same volume for remarks exceedingly in unison with what I have now written, and which I have been led to peruse upon having occasion to seek for the date of them. Two mistakes occur, however, the rectification of which is necessary to render my papers of 1838 as intelligible as they would otherwise be. I mistook *Pteroptochus* (or some kindred form) for *Megapodius*; and by *Promerops* I intended sundry *passerine* birds which were then usually classed in that genus, as distinguished from the real African *Promeropidæ*, which are intermediate to *Bucerotidæ* and *Upupidæ*. With this explanation, the outlines of classification which I then proposed are very nearly the same as what I at present adopt and adhere to, with the advantage of greatly increased information and of more than a quarter of a century of further experience.

The numbers which I proceed to cite are of course those of Dr. Jerdon's work.

1870 2. *VULTUR CALVUS* (Gould's B. As. pt. xii.).

422 That *V. imperialis*, Tem. (Pl. Col. 2), should be referred to the present species is surely precluded by its superior size and the yellow colour of the bill. The actual specimen figured is assigned by Professor Schlegel to *V. auricularis*:—"Très vieil individu, qui a longtemps vécu dans la Ménagerie, Afrique." (Mus. des Pays-Bas, *Vultures*, p. 9.) There is a fine living individual of *V. calvus* at present in the Gardens of the Zoological Society of London.

3. *GYPS FULVUS*.

Professor Schlegel distinguishes as varieties of this species *Vultur occidentalis*, from the warm parts of Europe to the west of Italy, and North Africa; *Vultur indicus*, Temm. (Pl. Col. 26), from India; *V. rueppelli* (a well-marked distinct species, now living in the Zoological Gardens), from Africa; and *V. kolbii*, from South Africa. Mr. Gurney does not acknowledge these distinctions, with the exception of *Gyps rueppelli*; and a specimen which I received as *G. occidentalis*, from Algeria, was simply the female of *G. fulvus*; for in the *Vulturidæ* (inclusive, as I suspect, of the *Polyborinæ*), unlike the *Falconidæ* and *Strigidæ*, the female sex is always the smaller.

3. *GYPS INDICUS* (*verus*).

Professor Schlegel does not appear to know this well-marked species; for he puts *V. tenuirostris*, Hodgson, as a doubtful synonym of *G. bengalensis*! The figure by Mitchell, in Gray's 'Genera of Birds' (pl. 3), represents the plumage of immaturity. The adult has a white ruff as in *G. fulvus*, and a very few scattered small downy tufts on the bare black head and neck. Sig. Antinori notices it (by its synonym *V. tenuirostris*) as occurring in Central Africa (Catalogo, &c. p. 5). It is the only Vulture which I have seen in collections from the Malayan peninsula, though the late Dr. Theodore Cantor procured *G. bengalensis* at Pinang (P. Z. S. 1854, p. 258). From *G. fulvus* it is conspicuously distinguished by its much smaller size, comparatively slender bill, with the ceral portion of it remarkably elongated, and by the head and neck of the adult being quite

naked, with the exception of the few scattered downy tufts before mentioned; when younger the neck is also conspicuously less clad than in *G. fulvus*. From *G. bengalensis* it differs altogether; and it has fourteen *rectrices*, like *G. fulvus*, whereas *G. bengalensis* has twelve only.

5. GYPS BENGALENSIS (Gould's B. As. pt. iii.).

The African species is doubtfully identical (Ibis, 1865, ✓ p. 339). It is a little-known fact that the down of this common Indian Vulture is manufactured into powder-puffs and articles of costume, being as delicate as any other sort of down so used. I have seen in Calcutta heaps of flattened Vulture-skins of this species divested of their feathers, in the possession of native artisans, who earn their living by manufacturing articles of down; and little do most persons who use or wear such manufactures suspect the source from which they are derived*.

6. NEOPHRON GINGINIANUS, (Lath.). *N. percnopterus*, Sclat. P.Z.S. 1865, p. 675, *ptm.*

In the Gardens of the Zoological Society there were lately four white Ráchamáhs or Neophrons—one from Africa, and three from India. They were evidently of two distinct specific races. The African (Lev. Ois. d'Afr. t. 14; Vieillot, Gal. des Ois. t. 2; Jard. and Selb. Ill. Orn. pl. 23; Gould's B. Eur. pl. 3) is larger and more robust, the tarsi and toes conspicuously so. The corneous portion of the bill is black, and the ceral portion is of a reddish-yellow, different from the purer yellow of the cheeks; the talons also are black, and the cuneate tail passes the tips of the closed wings by an inch or more. In the three Indian birds the corneous portion of the bill is of a pale yellowish flesh-colour, as are also the talons; the ceral portion of the bill is of the same yellow as the cheeks; the points of the closed

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* Mr. F. Moore, in Horsfield's 'Catalogue of the Museum of the Hon. E. I. Company' (i. p. 2), gives, in a note, a quotation from Dr. F. Buchanan Hamilton's writings respecting "two kinds of Vulture" in Bengal; but he is wrong in supposing that *Vultur calvus* is one of those intended. The species referred to by Dr. B. Hamilton are unquestionably *Gyps indicus* and *G. bengalensis*. Instead of "screaming and hissing" I would rather use the words *inarticulate cackling and snorting*; for these Vultures have no proper voice; and the habit as described does not apply to *G. calvus*, which is not gregarious, and feeds in a more lordly style, the other birds giving way to it.

wings just reach to the tail-tip; and a conspicuous fold of skin is continued from beneath the ear to the throat underneath, which is little more than indicated in the African example; moreover the throat is quite bare in the Indian species, thinly clad with short white feathers in *N. percnopterus*, and with short black feathers in *N. pileatus*. The last appertains properly to the Ethiopian region (south of the Great Desert), the second to the southern half of the Eastern Atlantic region, and the first to the Indian region. Other African white Ráchamáhs I find to have black bill and claws, but not any Indian; and referring to *Vultur meleagris* of Pallas, I remark that he describes the black-billed race as a scarce bird in the Tauric Chersonesus (Crimea); while the Indian race is that figured in the collection of drawings presented by Mr. Hodgson to the British Museum. This bird appears to be the *Vultur ginginianus* of Latham (Ind. Orn. i. p. 7, and Gen. Hist. B. i. p. 27, pl. 5), founded on the "Vautour de Gingi" of Sonnerat (Voy. Ind. ii. p. 184).

8. FALCO PEREGRINUS.

Having now examined numerous British specimens, I can perceive in them no difference whatever from the Indian "Bhyri." Professor Schlegel considers the Peregrines from all America (to the Straits of Magellan) as not differing from those of Europe; but "la variété accidentale foncée de l'Australie," *F. melanogenys*, he recognizes as only a variety of *F. peregrinus*, occurring rarely in Java (and there preying on Jungle-fowl), and being probably the true *F. peregrinator* of Sundevall. Now in India (as in North America) *F. peregrinus* is a thorough "Duck-Hawk;" and I should not think it preys often on Jungle-fowl, which are more likely to fall victims to the *Spizaeti* and to *Lophospiza trivirgata*; and the Australian species also is described by Mr. Gould as emphatically a "Duck-Hawk:" but the Indian "Sháhin" (*F. peregrinator*) is much more of a forest-bird, and may now and then regale upon Jungle-fowl*. *F. melanogenys* has always appeared to me to be a good definite species, intermediate in

* In his account of *F. jugger*, Dr. Jerdon truly remarks:—"While the Bhyri prefers the sea-coast and the neighbourhood of lakes, rivers, and wet cultivation, and the Sháhin delights in hilly and wooded regions, the Lággur, on the contrary, frequents open dry plains and the vicinity of cultivation" (B. Ind. i. p. 31).

character between the *Bhyri* and *Sháhin*; and I suspect that its habits will likewise prove intermediate. As all of the Australian specimens which I have seen were essentially similar, I do not perceive how the race can be appositely designated an "accidental" variety of *F. peregrinus*. In like manner Professor Schlegel only acknowledges the Australian Hobby (*Hypotriorchis lunulatus*) as *Falco subbuteo frontatus**. (It ranges, as he tells us, to Amboyna and Ceram.) Now two common British birds which are very similar in appearance are universally recognized as good species (*Phylloscopus trochilus* and *P. rufus*), because we happen to be familiar with them, and to know of the difference of their notes and in the colouring of their eggs; but if *P. rufus* were brought as new from a distant region, and we were (as usual) unacquainted with its voice and with its eggs, upon the same principle it should be ranged as *P. trochilus rufus*; and no slight confusion would be introduced if we were to attempt to classify the Asiatic species of *Phylloscopus* and allied forms after this fashion! Alexander Wilson used to be irate at finding so many well-marked North-American species of birds set down as "varieties" (and usually "degenerate" varieties) of European species; and, with considerably increased knowledge, all of those now meet with general acceptance as acknowledged species. I quite hold with Dr. Jerdon in his remarks on species and varieties (Introduction, p. xxv *et seq.*), and think with him that "it is more convenient in practice to give to each [recognized] race a distinct specific name, than to speak of them as Var. A. or Var. B. of such a species," or, again, than to affix a double specific name, according to the system of Professor Schlegel. Indeed I look upon it as essentially a matter of convenience, more especially with regard to the views respecting species and varieties which have been propounded by Messrs. Darwin and Wallace.

9. FALCO PEREGRINATOR †, Sundevall. (The *Sháhin*.) *F. ruber*,

* Mr. Gould, in his recent 'Handbook to the Birds of Australia,' remarks that it "combines in its structure characters pertaining to the Hobby and to the Merlin of Europe," and moreover that it is a "stationary" or non-migratory species in all of the colonies which he visited. In structure it is decidedly a true Hobby, as distinguished from the Merlin group.

† [Mr. J. H. Gurney has called our attention to the fact that an adult female, attributed to this species, in the British Museum, believed to be

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Schlegel; *F. ruber indicus*, Aldrovandi; *F. communis indicus*, Gm.; *F. shahin*, Jerdon; *F. sultaneus*, Hodgson*.

I have only seen Indian specimens of this Falcon, though it doubtless occurs in the Indo-Chinese province, if not also in the Malayan. Mr. Layard obtained it in Ceylon.

10. *FALCO SACER*.

This is perhaps the doubtfully cited *F. biarmicus* of Vigne's list, noticed as being "common in the plains under the Alpine Punjab" (P. Z. S. 1841, p. 6)—unless, indeed, the common *F. jugger* be intended, or, more probably, *F. babylonicus*.

11. *FALCO JUGGER*.

It is remarkable that this very common Indian Falcon has not hitherto been noted from the low northern half of Ceylon. The young have pale lead-coloured tarsi and toes—not yellow, as represented in Gould's figure (B. As. pt. i.). There is a living adult at present in the Zoological Gardens †.

✓ 12. *FALCO BABYLONICUS*, Gurney, Ibis, 1861, p. 218. "*F. peregrinoides*," Hodgson, J. A. S. B. xxiv. 574; G. R. Gray, B. M. Catal. B. Nipal, 1st edit. p. 44 ("Red-naped Falcon").

In his second edition of the catalogue in question, Mr. Gray

from Nepâl, and an adult male in the Norwich Museum from Northern India, have a much lighter colouring on the underparts than has hitherto been figured or described as being the case in *F. peregrinator*. If it be not that this peculiarity is due to old age, Mr. Gurney supposes the two specimens just mentioned may belong to an undescribed species.—ED.]

* Undoubtedly the true *F. sultaneus*, H., though a figure in one of his drawings represents, I suspect, a stray individual of the Australian *F. melanogenys*; and such, also, may be Dr. Jerdon's supposed hybrid Falcon (p. 26).

421 † The *F. subniger*, Gray (Gould's 'Birds of Australia,' i. pl. ix.), appears to me to be decidedly one of the Sákir and Lanner group in immature plumage; and *F. hypoleucus*, Gould (B. Austr. pl. vii.), I greatly suspect to be no other than the adult of the same species. Professor Schlegel, I find, has expressed the same opinion. I also suspect, with Dr. Jerdon, that *Ieracidea occidentalis*, Gould, is merely the adult phase of *I. berigora* (B. Austr. i. pl. vii.-ix.). Since writing the foregoing remarks, I have seen Mr. Gould's useful 'Handbook of the Birds of Australia,' wherein he retains alike *Falco hypoleucus* and *F. subniger*, *Ieracidea berigora* and *I. occidentalis*; but I am not satisfied that he does so correctly.

identifies *F. peregrinoides* of Hodgson with *F. peregrinus*! Mr. Hodgson was of course familiar with the common *Bhyri* of Indian falconry, and would therefore at once discriminate *F. babylonicus* as a separate species. There is a fine specimen of an adult female (as adjudged) of this rare Falcon in the Worcester Museum, alleged to be from Java, which must needs be a mistake. Its general colouring is very pallid; but I would refer the species to the Peregrine subgroup, rather than to that of the Sákir and Lanner. The specimen in the Worcester Museum is like an adult female Peregrine, only much paler, with all the markings considerably less developed; nape light cinnamon-rufous marked with dusky; the moustachial streak small; the feathers of the upper parts cross-banded as in adult Peregrines. A recent communication from Dr. Jerdon proves that *Falco babylonicus* is not uncommon in Kashmir (*vide antea*, p. 221). ✓

13 and 14. HYPOTRIORCHIS SUBBUTEO and H. SEVERUS.

The crepuscular habit of the birds of this division has now been noticed in *H. eleonoræ* (Ibis, 1865, p. 333)*. *H. severus*† bears just that relationship to *H. subbuteo* which *Hirundo cahirica* bears to *H. rustica*, and *H. hyperythra* (of Ceylon) to *H. erythropygia* (Sykes, which is distinct from *H. daurica*). In all of these cases the deeper-coloured bird is less migratory, or even permanently resident. The Rufous-bellied Hobby has not been observed northward of the Himálaya, nor *Hirundo hyperythra* out of Ceylon; and while neither *H. rustica* nor *H. rufula* winters in Palestine, Mr. Tristram remarks of *H. cahirica* that "a few remain on the sea-coast and in the Ghor all winter" (P. Z. S. 1864, p. 443). Indeed, it would appear that he observed them in considerable numbers during the winter months ('Land of Israel,' pp. 105, 118). It may be added that *Falco peregrinator* stands in the same relationship to *F. peregrinus*, and is likewise a more subtropical species, with a comparatively limited range of distribution. Compare also the African *Tinnunculus rupicolus*

* For the distinctions between *H. concolor* (*verus*) and *Lithofalco ardesiacus*, see MM. J. Verreaux and O. des Murs in Rev. Zool. 1862, p. 177.

† [Mr. Gurney considers the nearest ally of *H. severus* to be *H. cuvieri* (A. Smith) from Western and Southern Africa, with which he regards *Falco bosschii*, Schlegel (N. T. D. vol. i. p. 123, pl. 5), as identical.—ED.]

with *T. alaudarius*, and *Athene castanotus* of Ceylon with *A. radiatus*.

15. LITHOFALCO ÆSALON.

✓ 1867
236 "Peking, Amoy, and Foochow" (Swinhoe, P. Z. S. 1863, p. 260). In 'Ibis,' 1864, p. 418, Mr. Swinhoe records having noticed a pair of Merlins at sea, on the voyage from Bombay to Galle! (Were these satisfactorily identified?) Capt. T. Hutton remarks that the Merlin occurs at Kandahar (Journ. As. Soc. B. xvi. p. 775).

17. TINNUNCULUS ALAUDARIUS.

There is a Tenasserim (Siamese province) Kestrel to which attention should be directed—*T. saturatus*, Blyth (J. A. S. B. xxviii. p. 277). An adult female received from Yé is noticed in my 'Catalogue' of the Birds in the Calcutta Museum (No. 69) as "perhaps the female of a distinct race, remarkable for the great development of the black markings of its plumage." A young female of the same race was subsequently obtained, in which the cap is fuscous, with scarcely an indication of rufous margining the feathers, the fuscous colour also *predominating over the rufous* upon the whole upper plumage; and on the tail *the rufous bands are narrower than the black bands*. An adult male Kestrel, from the vicinity of Moulmein (though rather deeper-coloured than usual), differed in no respect from the common *T. alaudarius*; but it might well have been a stray individual of the latter, which is common in the adjacent Peguan province of the Indo-Chinese subregion; or perhaps, though less probably, the adult male of *T. saturatus* may prove to be less strongly distinguished, as is indeed exemplified by *T. japonicus* (Faun. Japon. tab 1 & 1 b). *T. saturatus* is quite distinct from *T. moluccensis* (Hombr. et Jacq. 'Voyage au Pôle Sud,' Ois., tab. 1 & 2).

19. ERYTHROPUS VESPERTINUS*.

The rufous plumage of the adult female of this species was unknown to Dr. Jerdon. In the 'Annals of Natural History' for

* [It would be very desirable to ascertain whether examples of the so-called *E. vespertinus* from India are to be referred to the western form of Red-footed Falcon or to the eastern, with the light-coloured under surface to the wings, *E. amurensis*. *Vide supra*, p. 119.—ED.] ✓

1841 (vol. iv. 213), this bird, under the name of *Falco rufipes**, is asserted to be "the most common Hawk in Asia Minor, building its nests under the roofs, and sometimes even in the interior of houses." In confinement this species and *E. cenchris* do not thrive upon meat, but must be fed on a mixed diet, like that commonly given to small insectivorous birds. Dr. Jerdon, it will be observed, agrees with me in referring *E. cenchris* and *E. vespertinus* to the same minimum division. I cannot help thinking that all naturalists who are familiar with the living birds must needs be of the same opinion. These two little white-clawed Kestrellets only visit Lower Bengal during the rainy season (so far as I have observed); and the same remark applies to *Baza lophotes*.

20. HIERAX EUTOLMUS.

The common Malayan species of this genus, *H. fringillarius*, Drapiez (*H. malayensis*, Strickland, and *Falco cærulescens*, Vieillot, Gal. des Ois. t. 18), is stated by Vieillot to be found "particulièrement en Bengale," where this genus happens to have no representative! An account of its habits (which of course are generic) is given in the 'Proceedings of the Zoological Society' for 1863, p. 206. The notice in Captain Mundy's 'Sketches of a Tour in India' (ii. p. 25), formerly quoted by me and since by Mr. F. Moore (P. Z. S. 1854, p. 258), refers unquestionably to *Accipiter virgatus*, and not to a *Hierax*, as indeed is remarked by Dr. Jerdon.

The *Khandesra* Hawk noticed by Dr. Jerdon (p. 54) is probably, as he suggests, *Accipiter nisoides*, nobis (J. A. S. B. 1845, xvi. 727, xxi. 359; ex Sumatrâ *A. fringillarius* var., Vigors, 'Appendix to Memoir of Sir T. S. Raffles,' p. 549; and *A. gularis*, Schlegel, Faun. Japon. Aves, 1850, t. 2). Professor Schlegel mentions a specimen of his *Nisus gularis* from Nipâl! Dr. Jerdon writes word that *A. nisoides* is not rare in the interior of the Himálaya; but two examples received from him, possibly intended for this (though I can hardly comprehend his

* [We cannot help thinking that in the passage quoted there may have been some confusion between this species and *Tinnunculus cenchris*. Confer 'Ibis,' 1860, pp. 380, 381.—ED.]

making such a mistake), are decidedly *A. virgatus**. In the Report on Japanese Ornithology accompanying the narrative of Commodore Perry's Expedition, it is stated of *A. gularis* that "The young bird is darker above than represented in the figure of the adult male in the plate in 'Fauna Japonica,' and has the transverse bars on the underparts much less regular and lighter-coloured than in the figure of the female in the same plate." I have little doubt of there being some misapprehension regarding the alleged occurrence of *Micronisus soloensis* ("Nisus *minutus*, Lesson," Pucheran, Rev. Zool. 1850, p. 200) on the Coromandel coast, for I have never seen it even from the Malayan peninsula. Professor Schlegel gives it from Java, Celebes, the Philippines, and China. 1867
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26. AQUILA CHRYSÆTUS.

The great *Berkut* or *Bjurkut* Eagle of Mongolia referred to is, I suspect, a much larger and more powerful bird than *A. chrysaetus*, to judge only from the feats credibly reported of it by Atkinson† and others, even as *Haliaeetus pelagicus* and the great Tibetan Raven are considerably more powerful birds than *H. albicilla* and *Corvus corax*. I saw such an Eagle on board an American vessel in Calcutta, wherein it had been brought from California, and have seen no other that even approached it in

* My original description of *A. nisoides* may here be quoted:—"Presumed female in mature plumage, differing only from that of *A. nisus* in its much inferior size, being smaller than the male of *A. nisus*, and in having the throat streakless white, excepting a narrow median dark line; the usual lateral lines occur, but not conspicuously, which are observable in various species of Hawks, Eagle-Hawks, &c. Length of wing $7\frac{1}{4}$ in.; of tail $5\frac{1}{2}$ in.; tarsi $1\frac{3}{4}$ in.; middle toe and claw $1\frac{1}{2}$ in." I have seen three nearly similar specimens of this Sparrow-Hawk, all received from Malacca, and it is much more closely akin to *A. nisus* than is *A. virgatus*. No trace of ferruginous colouring underneath was observable in any one of the three. They were of the size of the male *A. nisus*, or somewhat smaller, with the plumage of a non-rufous adult female of that species, combined with the trilineated throat of *A. virgatus*, the affinity, I repeat, being much closer to the former species than to the latter. When writing the foregoing remarks I had not the 'Fauna Japonica' at hand. Now that it is before me, I recognize in the figure of the female *A. gularis* an exact representation of my *A. nisoides*. 1868
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† Travels in Oriental and Western Siberia, p. 493. Pennant (Arctic Zoology, ii. p. 195) mentions Eagles being trained by the Tartars to attack Wolves! 421

magnitude. So magnificent an Eagle could have been no other than the redoubtable *Berkut*! Its colour was unusually dark, or at least more so than I have ever remarked the hue of *A. chrysaetus*.

29. AQUILA FULVESCENS.

This species is united with the African *A. navioides* by Mr. G. R. Gray (B. M. Cat. B. Nepal, 2nd edit.); but it is a considerably smaller bird, and varies much more in its colouring. I have had many alive, three or four of them together, but never saw any approaching the size of the three fine specimens of *A. navioides* at present in the Zoological Gardens.

30. AQUILA HASTATA.

This species is well figured by Mr. Hodgson, as I pointed out to Mr. G. R. Gray, who does not include it in the second edition of his catalogue of that gentleman's collection. I have had many fresh specimens of all ages, and could always easily distinguish it from *A. clanga*. Though nearly of the same linear dimensions, it is considerably less robust, with smaller bill and feet, and there is a recognizable difference in the plumage in all its phases, while in its habits it partakes (in a prominent degree) of the nest-plundering propensities of *Neopus malaiensis*.

31. HIERAETUS PENNATUS.

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This species occurs also in the Indo-Chinese subregion. Mr. Gould still regards it as distinct from the Australian *H. morphnoides* (Handb. B. Austr. i. p. 12). A rudimentary occipital crest always observable in Indian specimens.

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33. EUTOLMAETUS BONELLII.

I have no knowledge of this bird ever occurring in Lower Bengal.

37. SPIZAETUS KIENERI.

With respect to *S. caligatus* and *S. alboniger*, mentioned under this head, see Mr. Gurney's enumeration of the species of this genus (for which he accepts the name *Spizaetus*) accompanying Mr. Gould's figure (Birds of Asia, part xvi.) of *S. alboniger* (*S. borneonensis*, Gray), I have to remark that the species common in Lower Bengal (and there the only one) is *S. limnaetus* (*Falco caligatus* of Raffles), identical with the common Malayan

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159 race, similarly assuming the black plumage with full maturity, and very rarely exhibiting more than the rudiment of an occipital crest, as distinguished from *S. cirrhatus* of other parts of India and of Ceylon. The latter never attains the black plumage, and has always a long occipital crest. Horsfield's type-specimen of his *Falco limnaetus* from Java is identical with the Bengal bird; but Professor Schlegel (*Mus. P.-B. Astures*, pp. 10, 11) describes a long-crested specimen from Western Java which seems to agree with *S. cirrhatus* of India, while his other Javan specimens are clearly *S. limnaetus*. Even the large and very conspicuously distinguished *S. nipalensis*, Hodgson, is considered by Professor Schlegel to be merely a variety of his *S. cirrhatus*. Yet he discriminates *Spilornis cheela* from *S. bacha*, which most assuredly are less strongly characterized apart than are *Spizaetus nipalensis* and *S. cirrhatus*. *S. nipalensis* should occur rarely in the mountainous parts of Southern India, as it was obtained by the late Dr. Kelaart at an altitude of about 4000 feet in Ceylon. Professor Schlegel notes *S. kieneri* from the Philippines. It may be remarked that the black final plumage of *S. limnaetus* is analogous to that of the North-American *Archibuteo sanctijohannis*, if not also to that of *Astur melanoleucus*, A. Smith (*Zool. S. Africa, Aves*, pl. 18); but see Mr. Gurney's remarks ('*Ibis*,' 1864, p. 357).

39. SPILORNIS CHEELA.

There are several specific races of this type of *Circaetine* birds:—

(1.) *S. cheela* (Lath.), *Hæmatornis undulatus*, Vigors, which will probably be found to extend, in all suitable localities, throughout the Indo-Chinese subregion. To the westward it abounds in Lower Bengal and along the *Tarai* at the foot of the Himálaya*. Professor Schlegel notes it from China†.

* The true *Circaeti* frequent dry open country, where they prey chiefly on snakes and lizards. The species of *Spilornis* are found more about wet places, where they subsist mainly on large frogs (which they clutch in the mud) and on the more or less aquatic snakes (as the *Tropidonoti* and *Homolopsides*); hence their feet are almost always more or less clotted with sediment, which may render them frequent agents for transporting to a distance the germs of aquatic organisms.

† [Mr. Gurney informs us that *S. orientalis*, obtained by Mr. Swinhoe

(2.) *S. spilogaster*, nobis (J. A. S. B. xxi. p. 353), *Hæmatornis elgini*, Tytler (J. A. S. B. xxxii. p. 87), from the Andamán Islands, where it occurs together with the preceding; also *H. bacha* of Colonel Sykes's list of the birds of the Dukhun (P. Z. S. 1832, p. 79), as identified from a specimen in the India Museum presented by Colonel Sykes, being doubtless that referred to (*loc. cit.*). This well-marked race inhabits the Indian peninsula and Ceylon, and also the Andamáns, from which last-named locality a fine pair are now living in the Zoological Gardens. It is a smaller bird and not so handsome as *S. cheela*, with less developed crest and much less of black upon the crown, the tail-markings quite different, having the black subterminal band conspicuously much less broad. Some individuals may very probably show considerable similarity to the Malayan *S. bacha*, which would account for Professor Schlegel identifying a Cinghalese specimen with the Malayan bird; still the tail-bands should be differently placed*.

(3.) *S. bacha* (Daudin), *Falco bido*, Horsfield, which I suspect to be peculiar to the Malayan subregion. It is again smaller, with a darker shade of colouring, and fewer spots.

(4.) *S. rufpectus*, Gould (P. Z. S. 1857, p. 222), *Circaetus bacha celebensis*, Schlegel, from Celebes.

(5.) *S. holospilus* (Vigors), Gray and Mitchell (Gen. Birds, pl. 7), from the Philippines and South China.

S. SPILOGASTER has accordingly to be added to the fauna of the Indian subregion.

41. POLIOAETUS ICHTHYAETUS.

Young (in abraded plumage) figured as *Haliaetus lineatus* by Dr. Gray, in his 'Illustrations of Indian Zoology,' from General Hardwicke's drawing. This figure has been erroneously assigned to *Milvus govinda*; but the present genus has the same

in Formosa, appears to be identical with *S. cheela*, and that specimens from that island and from Northern India are rather larger than those from Southern India, Siam, and the Malay peninsula.—ED.]

* [We learn from Mr. Gurney that he has never seen an Indian example of this bird, but that specimens from Ceylon and the Andamáns appear to be absolutely identical with *S. bacha* (*Falco bido*, Horsf.) from Java, Sumatra, Borneo, and Singapore.—ED.]

speckled immature plumage as the Pariá and Bráhmīni Kites of India. *Pandion humilis*, S. Müller (*Ichthyaetus nanus*, Blyth), is, I feel quite confident, erroneously assigned to Bengal by Professor Schlegel (Mus. P.-B. *Aquilæ*, p. 18). The specimen which I described as *Ichthyaetus nanus* was from the Straits of Malacca. Mr. F. Moore also gives a specimen from Bengal with a note of doubt. Not improbably the range of *P. humilis* may extend to Lower Siam and the southern Tenasserim provinces, but I doubt if it reaches higher.

42. HALIAETUS LEUCORYPHUS; *Aquila leucorypha*, Pallas; *H. fulviventer*, Vieillot; *H. macei*, Cuvier.

Professor Schlegel, I have no doubt correctly, identifies the Indian bird with that described by Pallas.

44. BUTEO VULGARIS.

This certainly occurs in the North-western Himálaya, as near Másuri, where several specimens were collected by Dr. T. Stewart. *B. rufiventris* (Jerdon), from the Nilgiris, and also Nipál, is identified by Mr. Gurney (*Ibis*, 1862, p. 361) with "*B. cirtensis* of Le Vaillant, jun., the northern representative of *B. tachardus*" (as noticed in Jerdon's Appendix), which is referred to *B. tachardus* by Dr. Bree. M. des Murs, however, has shown (*Rev. Zool.* 1862, p. 49) that the "Tachard" of Le Vaillant, and consequently the *B. tachardus* of Daudin, is identical with *Pernis apivorus*,—an opinion in which Mr. Gurney coincides (*Ibis*, 1862, p. 361). At all events, Jerdon's name *rufiventris* takes precedence of *cirtensis* *.

45. BUTEO FEROX; *Falco ferox*, Gmelin; *B. rufinus*, Rüppell; *B. canescens*, Hodgson; *B. leucurus*, Naumann.

46. BUTEO ASIATICUS; *Falco asiaticus*, Latham; *Buteo aquilinus* and *Butaquila leucocephala*, Hodgson; *B. hemilasius*, Schlegel (*Faun. Japon. Aves*, tab. 7), as suggested by Mr. G. R. Gray in his catalogue of Mr. Hodgson's specimens presented to the British Museum (1846). In his second edition of

* [Mr. Gurney considers that there is no specific difference between *Buteo desertorum* (Daudin) from South Africa, *B. cirtensis* (Le Vaill., jun.) from North Africa, and *B. rufiventris* (Jerdon) from India. If so, of course Daudin's name has the priority.—ED.]

that catalogue (1863), however, Mr. Gray unites *B. leucocephala* with *B. ferox*, and *B. aquilinus* with *Archibuteo strophiatius*, Hodgson, the latter being decidedly identical with *Hieraetus pennatus* ! The specimen which I described as *aquilinus* (J. A. S. B. xvi. p. 176) was sent by Mr. Hodgson as his *Butaquila leucocephala* ; but as it had not a sign of white about the head, I suggested to that gentleman the better name *aquilinus* from its robust form. Either this or *B. plumipes* can hardly be other than *Falco asiaticus* of Latham. His description on the whole applies better to the former, while the "half-feathered legs (*pedibus semilanatis*)" preclude its identification with *B. ferox*. Both this species and the next have the tarsi feathered halfway down ; while in *Archibuteo hemiptilopus* (no. 49) the tarsi are plumed to the toes in front and externally, and are bare and scutellated behind. I suspect that both *B. asiaticus* and *A. hemiptilopus* inhabit chiefly the Mongolian region, and should be considered stragglers anywhere away from it.

47. BUTEO PLUMIPES, Hodgson ; *B. japonicus*, Schlegel (Faun. Japon. Aves, tab. vi. and vii. b).

Mr. Hodgson's specimen in the British Museum is certainly of a uniform dark brown ; but most Buzzards vary exceedingly in colour, and I see no reason why *B. japonicus* should not be identified with *B. plumipes*, notwithstanding that Mr. Swinhoe expressly asserts that the former "never acquires the dark plumage of the adult" of *B. vulgaris* (P. Z. S. 1863, p. 260). Only that one specimen was procured by Mr. Hodgson ; so that undoubtedly it must be considered an exceedingly rare straggler within the area of his researches. My *B. pygmæus* (J. A. S. B. xiv. p. 217), which Dr. Jerdon thought was not unlikely to prove identical with *plumipes*, is the same as *Poliornis poliogenys* (*Falco poliogenys*, Temm. Pl. Col. 235 ; Faun. Japon. Aves, tab. vii. b, where it is designated *Buteo pyrrhogenys*, *lapsu calami*, as also in Jerdon's Appendix). An interesting notice of this species is given in the Ornithological Report accompanying the narrative of Commodore Perry's Exploring Expedition to the China Seas and Japan. As many as four of the *Falconidæ* figured in the 'Fauna Japonica' (as I identify them)

thus straggle far westward, viz. *Accipiter nisoides (gularis)*, *Buteo asiaticus (hemilasius)*, *B. plumipes (japonicus)*, and *Poliornis poliogenys* (v. *pygmæus*, nobis). The last was originally described by Temminck from the Philippines, where it was subsequently obtained by the late Hugh Cuming; and a single specimen was procured by the late Dr. Helfer somewhere in the Tenasserim provinces, which I described as *Buteo pygmæus* in 1845. Mr. Swinhoe has noticed a crested example from Formosa ('Ibis,' 1864, p. 429).

53. *CIRCUS MELANOLEUCUS*.

"Procured by Mr. Fleming, R.A., at Tientsin. Probably extends throughout the interior of China" (Swinhoe, P. Z. S. 1863, p. 261); Upper and Middle Amuria (Gustav Radde, 'Reisen, &c.' ii. p. 9, and taf. ii. fig. 1); also Afghánistân. Dr. Jerdon remarks (in his Appendix) that "this Harrier, I have every reason to believe, breeds in Northern India. I saw several in Purneeah in July, some of them in a garb resembling that of the females of the other species, and shot one bird in a state of change from the female garb to the black and white ordinary plumage. This was apparently not a young bird of the year, for the tail-feathers were much worn. Can this bird, then, have a double moult? It would appear so, unless I was mistaken in considering it not a bird of the year. If so, they have the ordinary female garb of Harriers at first, and shortly afterwards assume the peculiar pied livery of this species." In no diurnal bird of prey known to me are the nestling-feathers shed during the first year; and they are commonly much abraded when cast. In the Owls, on the contrary, with the exception of the genus *Strix* (or particular subfamily *Striginæ*), the short and flimsy nestling-garb, inclusive of the primaries and rectrices, is moulted soon after leaving the nest. Unfortunately Dr. Jerdon does not describe the first plumage of *Circus melanoleucus*, noting the distinctions by which it may be known from that of other species.

55. *HALIASTUR INDUS*.

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461 According to Professor Schlegel, this species is spread from Nipâl to the Philippines and Australia. The *H. girrenera* (Vieillot, Gal. des Ois. pl. 10; *H. leucosternus*, Gould, B.

Austr. i. pl. 4), he remarks, is founded (*leucosternus* at least) on the absence of the black median stripes on the feathers of the white portion of the plumage, a character "purely accidental," as also in *H. vocifer*. This view is irreconcilable with the fact that these marks are invariably strongly developed in the Indian race, and are never seen in the Australian race; while in the Javan race (extending to Siam) they are present but only slightly developed, the white feathers being merely black-shafted. Specimens from Bouru, Gilolo, and Aru are of the true Australian race, without even the shafts of the white feathers black and contrasting. Three Indian specimens and a Javan one were lately to be seen together in the Gardens of the Zoological Society, the difference between them being very conspicuous. Of the immense number which I have examined or beheld close in India, I certainly never saw even one resembling or approximating to the Javanese bird. Upon one occasion I remember witnessing an extraordinary assemblage of "Brahmini Kites," collected to watch the dragging of the moat which surrounds the old fort at Budge-budge (on the bank of the Hugli below Calcutta). There were many hundreds of them, perched so close together on the surrounding trees that it appeared as if the branches would give way with the weight of them.

The intermediate Javan race (*H. intermedius*, 'Ibis,' 1865, p. 28), is possibly the result of intermixture; and it may be that there is a greater or less development of the black streaks in the Malayan province according to the proportions of that intermixture, constituting a gradation or transition from the Indian race to the Australian, as in some other instances where contiguous races blend; and this would lead observers in that particular zoological province to suppose the absence or amount of development of the streaks to be "purely accidental." The near affinity of the fine large African *Haliastur vocifer* to the "Brahmini Kite," noticed by Professor Schlegel, struck me immediately on beholding the pair of the former now living in the Zoological Gardens; but the voice is very different—that of *H. indus* being a peculiar sort of *bleat*, quite unlike the shrill cries of most *Falconidæ* and the barking notes of others. *H. sphenurus*, Gould, bears a similar affinity to *Blagrus leucogaster*.

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56. MILVUS GOVINDA.

Professor Schlegel (Mus. P.-B. *Milvi*, p. 2) identifies this with the *M. melanotis*, Schlegel (Faun. Japon. *Aves*, tab. v. and v. B), of China and Japan*. Of the myriads of Indian Kites which have been familiarly observed by me for more than twenty-one years, I certainly never saw one even approaching to the rufous colouring represented in the 'Fauna Japonica' (tab. v. B) ; and, so far as I have seen, the adults of *M. melanotis* exhibit a mottling of the feathers of the upper parts, as shown in the figures cited, which is never seen in adults of the Indian Kite. The Chinese species has, moreover, a rather stouter bill. In former years I held this opinion in opposition to that of my friend Mr. Swinhoe (*in epistolis*); but I observe that he now gives *melanotis* (and not *govinda*) in his "Catalogue of the Birds of China" (P. Z. S. 1863, p. 260) †. Mr. Gould, in his recently published 'Handbook to the Birds of Australia,' states of *M. affinis* that it "appears to enjoy a very wide distribution, since it not only inhabits Australia, but appears to extend its range through the [so-called] Indian Islands to the peninsula of India. Mr. Gurney informs us that it occurs in Macassar, and certainly in India as far north as Nepal, though it is generally confounded in the latter country with its larger relative *M. govinda*." In every assemblage of Indian Kites there is much disparity of size, some males being considerably smaller than the largest females ; and the former would seem to be undistinguishable from the Australian *affinis* ; but I am not disposed to accept the opinion that there are two separable races of *Milvus* in the Indian and Indo-Chinese subregions. In Mr. Gould's representation of the common Pariá Kite of India (B. As. pl. iv.),

* "Fait entendre une espèce de chant assez agréable" ! (G. Schlegel as quoted). The Indian species has a loud and shrill tremulous squeal, whence its native name of *Chil* (pronounced *Cheel*), which has been transferred by some mistake to *Spilornis cheela*, as the native name *Shikra* is in like manner transferred from *Nisastur badius* to *Lithofalco chiquera*.

† There is a specimen of *M. melanotis* in the Zoological Gardens, which, though not labelled as such, is doubtless the individual really received from China, rather than an example of undoubted *M. migrans* which is so ticketed. From the latter it is easily distinguishable by its dark iris.

the cere and feet should have been coloured of a much paler or dull light sulphur-yellow, or what might rather be termed dull yellowish white; while the dark iris is correct, and conspicuously distinguishes both this species and *M. melanotis* when alive from *M. migrans*, as may now be seen in the Zoological Gardens. When I was in the habit of continually seeing the Indian Kite in the utmost profusion, and commonly near enough to permit of the closest observation, the error here noticed of colouring the cere and feet of much too deep a yellow was strikingly apparent. It is amusing to stand at a window in a neighbourhood where these birds and the Crows (*Corvus splendens*) abound, and there to make movements of the arm as if throwing something away: both Kites and Crows are immediately attracted and gather round, and will sweep by and hover about close, watching eagerly for what they suppose is being cast out to them. Colonel Tytler has given a good account of an assemblage of Kites and Crows preying on the winged *Termites*, as they issue forth in a jet, which at a little distance might be mistaken for a continuous exhalation of smoke or vapour; and a curious sight it is to behold them thus streaming forth in myriads (Ann. & Mag. N.H. 1854, xiv. p. 171). On occasions of this sort various other species intermingle, Drongos (*Dicrurus*), Mainas (*Acridothores*), and insectivorous Bats. Every predatory creature will devour eagerly the winged "White Ants"*.

58. BAZA LOPHOTES.

Professor Schlegel notes this species from Malacca, whence I also have repeatedly seen it. It occurs rarely in Ceylon.

* It is well known how the winged *Termites* are attracted by a light, or by a white table-cloth. Upon occasions of their thus swarming into a room, my caged small insectivorous birds used to enjoy a grand treat. I had them in large cages with wire all round; and placing these on the floor in a circle, with a light in the centre, plenty of *Termites* would enter the cages to pass through them towards the light, and would keep their inmates incessantly occupied, till they could manage to get down no more of them. In the course of a quarter of an hour or thereabouts, after their first appearance, every *Termes* will be found to have shed its wings, and, crawling about, scarcely one escapes falling a prey to small Geckos and other enemies.

60. *STRIX INDICA*, nobis, n. sp.

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160 Syn. *S. javanica*, Jerdon, B. Ind. i. p. 117; *S. flammea*, Gould, P. Z. S. 1859, p. 151 (ex Siam) ?

Prof. Schlegel (Mus. P.-B. *Striges*, p. 4) unites *S. javanica* with *S. flammea*, and remarks of "individus des Indes orientales" that "Il paraît que leur taille est tant soit peu moins forte que dans ceux de l'Europe et que le bas de leur tarse est un peu moins emplumé." The late Hugh Strickland identified Horsfield's type Javan specimen with *S. candida*; and the species which is figured by Gray and Mitchell (Gen. Birds, pl. 15) is considerably more akin to *S. candida* than it is to *S. flammea*, and again still less so to *S. indica* (which I now distinguish) of the Indian and Indo-Chinese subregions. The latter, as Dr. Jerdon remarks, as compared with *S. flammea*, "differs by being larger, with more robust feet and toes, and in being more spotted beneath." The last character, however, is by no means of constant occurrence. At a time when I erroneously supposed the Indian Screech-Owl to be identical with the European, I at once discriminated a specimen of the latter (from an unknown locality—Egypt, as I afterwards learned) and placed it as a separate species (no. 172) of my Catalogue of the Birds in the Asiatic Society's Museum, Calcutta (1849). Subsequently I named it *S. pusilla* (J.A.S.B. xviii. p. 801), and was not a little surprised when it proved to be the real *S. flammea*. The distinction I have ever since found to be constant; and the difference of the two races is so very conspicuously apparent, upon comparison of specimens, that I cannot understand Prof. Schlegel identifying a Nipâlese example (presented by Mr. Hodgson) with his Javan race. They belong even to different sections of *Striginae*, with much difference of habit—*S. indica* ranking with *S. flammea* in *Strix* proper, and *S. javanica* in *Scelostrix* of Kaup, together with *S. candida* and *S. capensis*. Prof. Kaup considers the Australian *S. delicatula*, Gould (B. Austr. i. pl. 31), to be identical with *S. javanica* (*vera*); remarking, "I cannot find any difference between the examples of this species from Australia and those from Java[?], and I feel quite sure that *S. delicatula* and *S. javanica* belong to one and the same species" (Trans. Zool. Soc. iv. p. 247). Mr. Cassin, in his 'Catalogue of *Strigidae*,' keeps *S. de-*

licatula apart from *S. javanica* (Proc. Acad. Nat. Sc. Phil. 1849); but then all his specimens were Indian, and of course *S. indica*: yet he cites the beautiful and correct figure of *S. javanica*, published by Messrs. Gray and Mitchell, as representing his supposed *S. javanica*. Finally Mr. Gould, in his 'Handbook to the Birds of Australia,' retains *S. delicatula*, but refers to *S. javanica* "of India" (i. e. *S. indica*), and not to the true *S. javanica* of the Malayan subregion. Numerous specimens of *S. delicatula* in the British Museum seem to make a very close approach to *S. indica*, and not to *S. javanica*, which latter is a small *Scelostrix* (as distinguished from *Strix*), with white bill and claws like the Indian *Neophron*. *S. affinis*, nobis (Ibis, 1862, p. 388), from South Africa, proves to be *S. poensis*, Fraser. Mr. Wallace has a fine true *Strix* from Macassar which is still more robust than *S. indica*, and closely approximates *S. personata* of Australia (Gould's B. Austr. i. p. 29). ✓ 1868 150

61. SCELOSTRIX CANDIDA. 1867 184

I never obtained this bird in Lower Bengal; but I remember that the late Professor Wallich had a coloured drawing of one that, as I understood from him, had been killed in the Calcutta Botanic Garden; and Mr. F. Moore's supposed *S. capensis*, represented in one of Buchanan Hamilton's drawings, refers, as a matter of course, to this species. In the 'Ibis' (1865, p. 30) ✓ I mentioned that I found *S. candida* among the Philippine specimens in the Derby Museum of Liverpool, two very fine examples (collected by the late Hugh Cuming); but since I have come to understand the differences of the kindred species, I feel that I should like to reexamine the Philippine bird, which is likely to prove another distinguishable species, however close to *S. candida*, and the more so as the latter would otherwise appear to be one of the peculiar species of the Indian subregion*. 1867 184

62. PHODILUS BADIUS.

Prof. Schlegel refers this species to his *Uhula* as distinguished

* The species of *Scelostrix* are distinguished by their long and slender tarsi, which are not feathered on the lower half. They are ground-birds, which conceal themselves in long grass during the day, and affect the open country away from human habitations—habits considerably diverse from those of the birds which constitute the genus *Strix* as here limited.

from *Strix*; and upon examination of the external ear and other characters, I find that it has no claim to belong to the Screech-Owl subfamily (*Striginae*), but is distinctly one of the Hooters (*Syrniinae*). Messrs. Mottley and Dillwyn remark that "it has only a single note, frequently repeated, and which is much like the first note of the common Wood-Owl's cry." I observe that a specimen from "India," that had formed part of the collection of my late friend Major Boyes, is noted in Mr. Cassin's 'Catalogue of the *Strigidae* in the Philadelphia Museum:' this puzzled me for awhile, as indicating a more north-western range for this species than I could quite understand (knowing where Boyes collected personally); but I have lately seen several Tenasserim specimens received from Major Boyes, which sufficiently explains how he came by a *Phodilus badius*.

64. *BULACA NEWARENSIS*.

422 This species is figured by Gray and Mitchell (Gen. Birds, pl. 14) with yellow irides, which is a mistake. The species of *Bulaca*, as of *Syrnium*, have dark irides, while those of *Ptynx* (I suspect) have yellow irides. In the great series of Scops-Owls there are two groups, one having dark and the other yellow irides. To the former belong certain African species of considerable size, as the so-called *Bubo lacteus* (Temm. P. C. 4), also *B. poensis*, Fraser (figured in incompletely mature plumage as *B. fasciolatus*, Temm., in P. Z. S. 1863, pl. 33), and another beautiful species, *B. cinerascens*, now, together with *B. poensis*, in the Zoological Gardens, which seem to differ only from *Bulaca* (founded on the present species) in having tufts of peculiar and rather flimsy texture, which they have a peculiar mode of displaying, spreading them out laterally like the opening of a wing; and to this group of Scops-Owls also belongs the *Ephialtes lettia* and its immediate congeners (as noticed in the sequel). A parallel series of yellow-eyed Scops-Owls comprises the so-called *Bubo africanus* and species akin to it, as also the small European Scops-Owl with others allied to it. Professor Schlegel and also Mr. G. R. Gray erroneously identify *Bulaca newarensis* of Hodgson with *B. indrani* of Sykes (*B. monticola*, Jerdon),—the Himalayan species being very much larger than the other, and differing more from it than

Spilornis cheela does from *S. bacha*. As Dr. Jerdon remarks, the Himalayan bird must weigh fully double that from Southern India.

65. BULACA OCELLATA; *Syrnium ocellatum*, Lesson (Ibis, 1865, p. 29).

Dr. Jerdon states that this bird is "not found in Lower Bengal." I never obtained a Bengal specimen, but I once picked up an unmistakeable feather of the species in a mango-tope some thirty miles above Calcutta. I have never seen it from the eastward; but *B. sinensis*, Latham (*Strix orientalis*, Shaw; *S. seloputo*, Horsf.; *S. pagodarum*, Temm. Pl. Col. 230), occurs in Siam, the Tenasserim provinces, Malayan peninsula, and Nicobar Islands. A specimen is noted by Mr. F. Moore from the Himálaya; but I doubt this alleged habitat, and believe that it was from one of the sub-Himalayan valleys. Capt. T. Hutton has well remarked that an ordinary collector at one of the Himalayan sanatory stations (say Māsuri) employs three or four native *shikáris*, and he sends one or two of them far into the interior of the hills, and others down into the sub-Himalayan valley of the Deyra-doon; and their gatherings of birds, insects, and so forth (from quite different *faunæ* or assemblages of species) are alike brought to England as a collection from the Himálaya! Thus untravelled students are apt to be misled.

69. ASCALAPHIA BENGALENSIS.

Distinct from *A. ascalaphus*, though closely approximating to that species. Dr. Jerdon omits to give the colouring of the irides, which are of a redder and deeper flame-yellow than those of a specimen of *A. ascalaphus* at present in the Zoological Gardens.

70. ASCALAPHIA COROMANDA.

The late Prince Bonaparte associated this bird with *Huhua orientalis* (erroneously placing *H. pectoralis*, Jerdon, as a synonym of the latter), in the 'Revue de Zoologie' for 1854 (p. 542). Prof. Kaup, also, as strangely associates *A. coromanda* with *Huhua nipalensis* and *H. orientalis*, as also the African *Bubo* (?) *lacteus* (Temm.), in his division *Urrua*, while *A. bengalensis* and *A. ascalaphus* are assigned by him to typical *Bubo*! *A. bengalensis* happens

to be the type of *Urrua* of Hodgson. The irides of *A. coromanda*, in all that I have seen and kept alive, were of a bright deep yellow, rather than "orange-yellow" as Dr. Jerdon asserts.

71. *HUHUA NIPALENSIS*.

The *Bubo pectoralis* of Cassin's 'Catalogue of *Strigidae*' is distinguished from his *B. nipalensis*, which latter is placed as a synonym of *B. orientalis*, and is, moreover, from the Himálaya. Now *Huhua nipalensis* is a very much larger bird than *H. orientalis*, and is otherwise conspicuously distinct from it. The only question that remains is whether *H. pectoralis* of Jerdon, figured in the 'Madras Journal of Literature and Science' (vol. x. p. 89, pl. 1), from Southern India, be distinct from *H. nipalensis* of the Himálaya. A juvenile Tenasserim specimen of this genus, forwarded by Col. Tickell to the Asiatic Society's Museum, Calcutta, was incorrectly assigned by me to *H. orientalis* (J. A. S. B. xxviii. p. 411), as corresponding to the description of *Strix sumatrana*, Raffles (Trans. Linn. Soc. vol. xiii. p. 279), and also Temminck's figure of the immature plumage of *orientalis* (P. C. 289); but I erroneously added *H. nipalensis* and *H. pectoralis* as synonyms, as again in the 'Ibis' for 1863 (p. 26). The same nestling-bird was described by Col. Tickell as *Ptiloskelos amherstii* (J. A. S. B. xxviii. p. 448). It should be referred decidedly to *H. nipalensis*.

72. *KETUPA CEYLONENSIS*.

Obtained in Palestine by Mr. Tristram (Ibis, 1865, p. 261). ✓
The figure thus named by Temminck (Pl. Col. 74) is that of *K. javanensis*, a species which occurs (perhaps as a straggler) on the eastern side of the Bay of Bengal as high as Arakan, in Ramri Island, together with *K. ceylonensis*; but further southward it is the common Fishing-Owl of the Malayan peninsula, and undoubtedly the supposed *K. flavipes* referred to as "common in the Indian islands and Siam" by Mr. F. Moore. Prof. Schlegel does not assign either *K. ceylonensis* or *K. flavipes* to the Malayan subregion; but Mr. Cassin notes a specimen of *K. ceylonensis* from Java, which is doubtless a mistake. Col. Tytler has inadvertently written *javanensis* for *ceylonensis*

in his remarks on the fauna of Barrackpore, near Calcutta (Ann. & Mag. Nat. Hist. 1854, xiii. p. 366)*.

74. *EPHIALTES BAKKAMÆNA* (Pennant); *Otus scops japonicus*, Schlegel (Faun. Japon. *Aves*, tab. ix.); *Scops zorca asiatica*, Idem, Mus. P.-B. *Oti*, p. 30.

Of this small Indian Scops-Owl the Calcutta Museum can show a very complete gradation, from the grey *Scops pennatus* to the bright chestnut or ferruginous *S. sunia* of Hodgson; or, if one semi-link in the chain be wanting, it is supplied by an Indian specimen referred to the European Scops-Owl by Mr. F. Moore. The specific identity of *S. pennatus* and *S. sunia* is certain, and they cannot even be admitted as different races; yet Mr. G. R. Gray (in his B. M. Cat. of Birds of Nepal, 2nd edit., 1863) adopts *S. sunia* for the rufous bird, while the grey bird (with *S. malayensis*, A. Hay, and *S. spilocephalus*, nobis, as synonyms) he refers to the European *E. scops*. Mr. F. Moore makes the same confusion. I am decidedly of opinion, as I have before stated (Ibis, 1863, p. 27), that the proper name for the Indian bird (whether grey or rufous) is *E. bakkamæna* (Pennant). It is the only Scops-Owl which I know of as an inhabitant of Lower Bengal; and I have occasionally obtained specimens in a curious way: they would lodge by day within the moveable "leaves" of a *jilmil* (or "jalousie"), in which singular retreat I have captured them. I have also known *Mus flavescens* to resort by day (with the vain notion of concealing itself) to the same very insufficient hiding-place. Of course the *jilmils* being a little open, to permit of their ensconcing themselves, the animals intercept the light from without, and are so discovered. The Indian (or more probably Chinese) *E. gymnopus*, Gray, is surely no other than *E. bakkamæna* (vide Ibis, 1863, p. 27); but the Malacca race (*S. malayensis*, A. Hay) seems to be somewhat different, and I have not found it to vary in shade of hue; while in India the rufous specimens are certainly more common than the grey; I even think, considerably so.

* [Mr. J. H. Gurney agrees with Mr. Blyth in considering *Ketupa flavipes* of North-eastern India distinct from *K. javanensis* of the Malay Archipelago, as, though the colouring of the two is similar, the former is fully a third larger than the latter.—ED.]

75. *EPHIALTES LEMPIJI*.

Although Prof. Schlegel does not know of this species as Indian, it is nevertheless common in Malabar and Ceylon, where it is undistinguishable from examples from the Malayan subregion. It differs from the series next to be noted by its yellow irides.

1867
409 There is a series of three very similar dark-eyed races, of different sizes and each having its respective range of distribution. The largest is *E. rufitorques*, Bonap. (Faun. Japon. *Aves*, tab. 8, where it is figured with yellow irides, which I suspect is a mistake): wing 7 to 7·5 inches. The next is *E. lettia*, Hodgson, of the Indo-Chinese subregion, spreading westward along the lower regions of the Himálaya: wing 6·5 to 7 inches. The third and smallest is *E. griseus*, Jerdon (*E. lettoides*, nobis), from the Coromandel or eastern Ghâts of the Indian peninsula, where only it has been observed as yet, being replaced in the western or Malabar Ghâts and in Ceylon by the golden-eyed *E. lempiji*: wing 5·5 to 6 inches only. I believe that all of these will have to be eventually recognized as specific races, as also *E. rufescens* (Horsf.) (*E. mantis*, S. Müller) from Sumatra, Java, and Borneo—and a much larger species which is otherwise very like it, *E. sagittatus*, Cassin (Journ. Acad. Phil. ii. pl. 12), of which I have seen several specimens not differing in colour, all of them from the Malayan peninsula. This fine Scops-Owl bears just that relationship to *E. rufescens* which *E. rufitorques* does to *E. griseus* (*E. lettoides*); and I should long ago have named it had I not been under the impression that it was the true *rufescens* of Horsfield*.

* I have looked over Mr. Wallace's collection of Scops-Owls (obtained by himself) and found no difficulty in resolving them into six species, viz. :—

(1.) *E. sylvicolus* (Wallace). Flores. The largest of them, a young specimen having the closed wing 8·5 inches.

(2.) *E. magicus* (Müller); *E. leucospila*, G. R. Gray. From the Moluccas. Since identifying these, I have found that Prof. Schlegel has likewise done the same.

(3.) *E. menadensis* (Quoy & Gaim.). From Celebes and Flores.

(4.) *E. lempiji*, Horsfield (*Strix noctula*, Reinw. & Temm.). Malayan subregion, Ceylon, and Malabar.

(5.) *E. rufescens*, Horsf. (*Otus mantis*, Müller). Sumatra, Java, Borneo.

(6.) *E. malayanus* (A. Hay). Malayan peninsula.

76. *ATHENE BRAMA*.

I believe that Dr. Jerdon is mistaken in noting this bird from Ceylon, as also from "Persia and other parts of Asia" west of India. *Noctua indica*, one of the synonyms of this species, is described as being "common about the foot of the mountain near the town of Erzeroum" (P. Z. S. 1839, p. 119). This, I believe, is the only authority for noting it from Persia; and the species was doubtless *A. persica* (Vieillot), *Noctua meridionalis* of Risso, *Athene bactriana*, nobis, *A. gymnopus*, Hodgson, and *Strix numida*, Levaill., jun., which inhabits Middle and Western Asia, Southern Europe, and Africa north of the Atlas; it is common in Afghánistân, but does not enter the Indian sub-region, nor even the Himalayan province of the South-Turanian subregion, Mr. Hodgson's specimens having been obtained north of the snow. *A. sonnerati* (Temm. Pl. Col. 21) is stated to have been sent from Pondicherry by M. Leschenault, but no such bird is known in India or Burma. Dr. Pucheran identifies it with *Strix superciliaris*, Vieillot (Rev. Zool. 1849, p. 19), which is therefore different from *Ephialtes sagittatus*, Cassin (Ibis, 1863, p. 21); and Prof. Kaup designates it *Ieroglaux superciliaris*, but without mentioning its particular habitat, which was unknown to M. Vieillot. The same individual specimen in the Paris Museum was described by Temminck, Vieillot, and Lesson.

77. *ATHENE RADIATA*.

"A single specimen of this pretty little owl was obtained at Keddah (Malayan Peninsula), agreeing in every respect with those obtained from India" (P. Z. S. 1854, p. 262). *A. castanoptera*, Horsf. (*Strix spadicea*, Reinwardt, Temm. Pl. Col. 98), might be expected to inhabit the Malayan peninsula, but I have never seen it from thence, though Helfer (a loose authority) notes it from the Tenasserim provinces (J. A. S. B. vii. p. 861), and his identification might perhaps suffice for a species so remarkable in its colouring, were it not that he might have met with a straggler of the nearly allied *A. castanotus*, nobis, of Ceylon, even as Dr. Cantor procured a stray individual of the Indian *A. radiata* at Keddah. *A. castanotus* is recognized as distinct from *A. castanoptera* by Prof. Schlegel.

80. GLAUCIDIUM BRODIEI.

Obtained by Col. Tickell in the mountainous interior of the Tenasserim provinces (J. A. S. B. xxviii. p. 416). *Athene sylvatica* (Müller), Bonaparte (Consp. Av. i. p. 40), would appear to be an equally diminutive species inhabiting Sumatra.

It will be remarked that a large proportion of the diurnal birds of prey are common to India and Europe—in fact, all of the ordinary European species, except *Archibuteo lagopus*, *Haliaeetus albicilla*, and *Milvus ictinus*, perhaps also *Aquila nævia* as distinguished from *A. clanga* of Pallas; while the only European Owls which extend to India are *Otus brachyotus*, and in the Himálaya only *O. vulgaris*, and, as extreme rarities just within the Indian boundary, *Bubo maximus* and *Athene persica*. The small Indian and East Asiatic Scops-Owl is barely separable from the European race, but is commonly of a bright cinnamon or rufous-chestnut colour, which seems never to occur in the other. The only generally admitted Indian bird of prey whose geographical range extends to Australia is the maritime and very Gull-like *Blagrus leucogaster*, though, if Prof. Schlegel's views be adopted, we should have to add the Australian Peregrine and Hobby, still, however, as distinct varieties of the European species, or *vice versâ*, with equal reason! whilst Mr. Gurney (followed by Mr. Gould, as we have seen) identifies the smaller individuals of the common Indian Kite with the Australian *Milvus affinis*. In this I do not concur, inasmuch as I do not believe that two definite races could possibly be distinguished apart anywhere in India, but that every gradation would be found, from the largest to the smallest. Lastly, three rare stragglers of the family *Falconidæ* from Eastern China and Japan have been met with either just within the Indian boundary or close on its confines, and a fourth (*Buteo asiaticus*) very probably appertaining mainly to the Mongolian subregion north of Tibet—the home also of the gigantic Berkut Eagle, the *Haliaeetus pelagicus*, and the grand Tibetan Raven. *Buteo asiaticus* seems to hold pretty much the same relation towards other Buzzards.